FOOTNOTES

F O O T N O T E S

(7-day) For exposure of 7 days or less.
(10-day) For exposure of 10 days or less.
(24-hr) For exposure of 24 hours or less.
(A) Class A: Known human carcinogen; sufficient epidemiologic evidence in humans. Carcinogenic to humans (U.S. Environmental Protection Agency, 1986 Guidelines for Carcinogen Risk Assessment).
(B) Class B: Probable human carcinogen. Likely to be carcinogenic to humans (U.S. Environmental Protection Agency, 1986 Guidelines for Carcinogen Risk Assessment).
(B1) Class B1: Probable human carcinogen; limited epidemiologic evidence in humans. Likely to be carcinogenic to humans (U.S. Environmental Protection Agency, 1986 Guidelines for Carcinogen Risk Assessment).
(B2) Class B2: Probable human carcinogen; sufficient evidence from animal studies; no or inadequate human data. Likely to be carcinogenic to humans (U.S. Environmental Protection Agency, 1986 Guidelines for Carcinogen Risk Assessment).
(C) Class C: Possible human carcinogen; limited evidence from animal studies; no human data. Suggestive evidence of carcinogenic potential (U.S. Environmental Protection Agency, 1986 Guidelines for Carcinogen Risk Assessment).
(D) Class D: Not classifiable as to human carcinogenicity; no data or inadequate evidence. Inadequate information to assess carcinogenic potential (U.S. Environmental Protection Agency, 1986 Guidelines for Carcinogen Risk Assessment).
(E) Class E: Evidence of non-carcinogenicity for humans. Not likely to be carcinogenic to humans (U.S. Environmental Protection Agency, 1986 Guidelines for Carcinogen Risk Assessment).
(H) Carcinogenic to humans (U.S. Environmental Protection Agency, 2005 Guidelines for Carcinogen Risk Assessment).
(I) Inadequate information to assess carcinogenic potential (U.S. Environmental Protection Agency, 2005 Guidelines for Carcinogen Risk Assessment).
(L) Likely to be carcinogenic to humans (U.S. Environmental Protection Agency, 2005 Guidelines for Carcinogen Risk Assessment).
(L/N) Likely to be carcinogenic above a specified dose but not likely to be carcinogenic below that does because a key event in tumor formation does not occur below that dose (U.S. Environmental Protection Agency, 2005 Guidelines for Carcinogen Risk Assessment).
(N) Not likely to be carcinogenic to humans (U.S. Environmental Protection Agency, 2005 Guidelines for Carcinogen Risk Assessment).
(S) Suggestive evidence of carcinogenic potential (U.S. Environmental Protection Agency, 2005 Guidelines for Carcinogen Risk Assessment).
(1) Expressed as dissolved.
(2) Expressed as total recoverable.
(3) Now covered by the Primary MCL for Gross Beta Radioactivity.
(4) For dissolved chloride associated with sodium; criterion probably will not be adequately protective wher chloride is associated with potassium, calcium, or magnesium, rather than sodium
(5) For inorganic oxides; draft value.
(6) Pentavalent arsenic [As(V)] effects on plants.
(7) First value calculated for child; second value calculated for adult.
(8) Advisory concentration; U.S. EPA Water Quality Advisory; Reference 13.
(9) As CaCO3; minimum concentration except where natural concentrations are less.
(10) USEPA Drinking Water Advisory. From Reference 33.
(11) For dinitrophenols.
(12) Value developed for chromium (VI); may be applied to total chromium if valence unknown.
(13) For sum of bromoform, bromomethane and chloromethane.
(14) Regulatory dose level divided by 2 liters per day average consumption; represents a 1-in-100,000 incremental cancer risk estimate or 1/1000 of the No Observed Effect Level for reproductive toxicity.
(15) Determined to present no significant risk of cancer by the route of ingestion (Title 22, California Code of Regulation, Section 12707).
(16) Toxicity to one species of fish after 2600 hours of exposure.
(17) Mortality in a fish species after 30 day exposure.
(18) Applies separately to endrin and endrin aldehyde.
(19) For total trihalomethanes (sum of bromoform, bromodichloromethane, chloroform and dibromochloromethane); based largely on technology and economics.
(20) For halomethanes.
(21) Based on limited evidence.
(22) For chlorinated benzenes.
(23) Toxicity to a fish species exposed for 7.5 days.
(24) For dichlorobenzenes.
(25) 1983 Suggested-No-Adverse-Response Level; to be reviewed in the future.
(26) From Reference 8.
(27) For dichloroethylenes.
(28) For dichloropropanes.
(29) For dichloropropenes.
(30) This limit has a range of values between the first and second numbers shown.
(31) Adverse behavioral effects occur to one species.
(32) First value is an upper bound estimate, while second value is a central tendency estimate of risk.
(33) For sum of acenaphthylene, anthracene, benz(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(g,h,i)perylene, benzo(a)pyrene, chrysene, dibenz(a,h)anthracene, fluorene, indeno(1,2,3-c,d)pyrene, phenanthrene, and pyrene.
(34) Flavor impairment in a fish species occurs.
(35) Mortality to early life stages of a fish species occurs.
(36) Based on analytical quantitation limit available at the time the limit was established. Adverse water quality impacts may occur at lower concentrations.
(37) For mononitrophenols.
(38) Toxicity to algae occurs.
(39) Cancer risk at Notification Level is 5 in 1,000,000. 1 in 1,000,000 cancer risk at 0.002 ug/L.
(40) For white phosphorus.
(41) For carcinogenic polynuclear aromatic hydrocarbons.
(42) For endosulfan-alpha, endosulfan-beta and endosulfan sulfate.
(43) For benzene hexachloride isomers.
(44) First value calculated from corn oil gavage animal study; second value calculated from drinking water animal study.
(45) For sum of phthalate esters.
(46) For chloroalkyl ethers.
(47) For tetrachloroethanes.
(48) For chlorinated naphthalenes.
(49) 1980 U.S. EPA Suggested-No-Adverse-Response Level.
(50) For DDT, DDD, and DDE, in combination.
(51) This criterion is from a 1976 USEPA reference and also appears in the current list of recommended criteria published by USEPA. From Reference 9.
(52) For polynuclear aromatic hydrocarbons.
(53) For dinitrotoluenes.
(54) This criterion is from a 1973 USEPA reference, but it does not appear in the current list of recommended criteria published by USEPA. From Reference 20.
(55) From Reference 30.
(56) For nitrosamines.
(57) Guidance level to protect those individuals restricted to a total sodium intake of 500 mg/day; Reference 33.
(58) For haloethers.
(59) Chronic Suggested-No-Adverse-Response Level was estimated to be 100-fold lower than the listed 24-hour value in calculating this level
(60) Calculated from published Reference Dose using assumptions of 70 kg body weight, 2 liters/day water consumption, and 20% relative source contribution from drinking water. An additional uncertainty factor of 10 is used for Class C and S carcinogens.
(61) 6-month median.
(62) For pH between 6.5 and 9.0. Use of Water-Effects Ratios might be appropriate because: (1) aluminum is less toxic at higher pH and hardness but relationship not well quantified; (2) aluminum associated with clay particles may be less toxic than that associated with aluminum hydroxide particles; (3) many high quality waters in U.S. exceed 87 ug/L as total or dissolved.
(63) Average chain length, C12; approximately 60% chlorine by weight.
(64) Based on kepone.
(65) Value for 2,4-dinitrotoluene, 2,6-dinitrotoluene, the technical grade of either chemical or a mixture of isomers.

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(66) Measured as Cl. Maximum residual disinfectant level and goal. Applies only if this disinfectant is used.
(67) Measured as ClO2. Maximum residual disinfectant level and goal. Applies only if this disinfectant is used.
(68) Draft / tentative / provisional; applies only to second value if two separate values are listed; applies to range if a range of values is listed.
(69) For Arochlor 1260.
(70) At pH 6.8, caused 50% reduction in growth of yearling sockeye salmon in 56-day test.
(71) May be present as a decomposition product in Ferbam, Maneb, Nabam, Thiram, Zineb, and Ziram.
(72) As NO3; in addition, MCL for total nitrate plus nitrite = 10,000 ug/L (as N).
(73) Recommended level; Upper level = 500 mg/L; Short-term level = 600 mg/L.
(74) Recommended level; Upper level = 1600 umhos/cm; Short-term level = 2200 umhos/cm.
(75) Recommended level; Upper level = 1000 mg/L; Short-term level = 1500 mg/L.
(76) For "TCDD equivalents" calculated as the sum of 2,3,7,8-chlorinated dibenzodioxin and dibenzofuran concentrations multiplied by their respecitve USEPA Toxicity Equivalency Factors. See page 26 of Reference 28.
(77) For 1,2- and 1-3-dichlorobenzenes.
(78) Unless otherwise noted, from Reference 19.
(79) For elemental phosphorus; marine or estuarine.
(80) Instantaneous maximum.
(81) For oxychlordane and alpha and gamma isomers of chlordane, chlordene and nonachlor.
(82) A decrease in the number of algal cells occurs.
(83) Adverse effects on a fish species exposed for 168 days.
(84) Systems that use conventional or direct filtration may not exceed 1 NTU at any time or 0.3 NTU for 95th percentile value; stems that use other "alteranative" filtration systems may not exceed 5 NTU at any time or 1 NTU for 95th percentile value.
(85) Expressed as total recoverable; this National Toxics Rule criterion applies to SF Bay through Susuin Bay and Sacramento-San Joaquin Delta, Salt Slough, Mud Slough (north), and San Joaquin River,Sack Dam to mouth of Merced River; does not apply to San Joaquin River, mouth of Merced to Vernalis; see reference 23.
(86) For nonchlorinated phenolic compounds.
(87) For chlorinated phenolic compounds.
(88) For nitrophenols.
(89) Expressed as nitrogen.
(90) For total chlorine residual; for intermittent chlorine sources see Chapter IV, Table B of Reference 28.
(91) Second value from Reference 16.
(92) For 3,3'-Dichlorobenzidine and its salts.
(93) Based on the Public Health Goal for Benzo(a)pyrene in drinking water and potency equivalency factors (PEFs) for selected polynuclear aromatic hydrocarbons (PAHs) on page 109 of Reference 31.
(94) Carcinogen; criterion based on cancer risk. Criterion refers to the inorganic form only.
(95) For the pentavalent form.
(96) EC50 for eastern oyster embryos.
(97) Expressed as total recoverable; this National Toxics Rule criterion applies to SF Bay through Susuin Bay and Sacramento-San Joaquin Delta, Salt Slough, Mud Slough (north), and San Joaquin River,Sack Dam to mouth of Merced River; the California Toxics Rule applies this criterion to all other inland California waters; does not apply to Grassland Water District, San Luis National Wildlife Refuge, and Los Banos State Wildlife Refuge; see reference 23.
(98) For total residual chlorine.
(99) For sum of chlorine-produced oxidants.
(100) First number for Radium-226; second number for Radium-228.
(101) MFL = million fibers per liter; limited to fibers longer than 10 um.
(102) Calculated from published oral Cancer Potency Slope Factor using assumptions of 70 kg body weight and 2 liters/day water consumption.
(103) As nitrogen (N); in addition, limit for total nitrate + nitrite = 10,000 ug/L (as N).
(104) Based on endosulfan; USEPA Water Quality Advisory; Reference 13.
(105) Treatment Technique: Not to exceed 0.05% monomer in polyacrylamide when dosed at 1 mg/L for drinking water treatment.
(106) For five haloacetic acids (sum of monochloroacetic acid, dichloroacetic acid, trichloroacetic acid, monobromoacetic acid, and dibromoacetic acid).
(107) Unleaded; value for benzene.
(108) The level for noncancer health effects is also considered adequately protective of public health for cancer by the oral route of exposure, on the basis of the nonlinear dose response for this chemical and the mode of action for both cancer and noncancer effects having a common link through cytotoxicity.
(109) Optimal fluoride level and (range) vary with annual average of maximum daily air temperature; 50.0 to 53.7 degrees F - 1.2 (1.1 to 1.7) mg/L; 53.8 to 58.3 degrees F - 1.1 (1.0 to 1.7) mg/L; 58.4 to 63.8 degrees F - 1.0 (0.9 to 1.5) mg/L; 63.9 to 70.6 degrees F - 0.9 (0.8 to 1.4) mg/L; 70.7 to 79.2 degrees F - 0.8 (0.7 to 1.3) mg/L; 79.3 to 90.5 degrees F - 0.7 (0.6 to 1.2) mg/L.
(110) Picocuries per liter; including Radium-226 but excluding Radon and Uranium.
(111) MCL includes this "Action level" to be exceeded in no more than 10% of samples at the tap.
(112) Listed criterion expressed as unionized ammonia; criteria based on total ammonia are shown on Inorganics Page 14.
(113) Based on carcinogenicity at 1-in-a-million risk level.
(114) Developed as 24-hour average usinig 1980 USEPA Guidelines; but applied as 4-day average in the National Toxics Rule, reference 22.
(115) Criterion most appropriately applied to the sum of alpha-Endosulfan and beta-Endosulfan. Reference 26.
(116) Applies separately to Aroclors 1016, 1242, 1254, 1221, 1232, 1248, and 1260; based on carcinogenicity at 1-in-a-million risk level.
(117) Effluent limitation for wastes discharged to waters.
(118) For the sum of Aroclors 1016, 1221, 1232, 1242, 1248, 1254, and 1260.
(119) Cancer classification not supported by ingestion data.
(120) For isomers with chlorines in 2,3,7 and 8 positions.
(121) Cancer risk may not be linear with dose above 60 ug/L.
(122) For the oxide form.
(123) For the pentoxide form.
(124) For the gas phase.
(125) Applies to first value if more than one individual value is listed. Applies to the range if a range of values is listed. From Reference 7.
(126) Applies to second value if more than one value listed. Water-dilution odor threshold calculated from air odor threshold using equilibrium distributions. From Reference 29
(127) For protection of consumers of marine moluscs.
(128) Virtually free from oil and grease, particularly from the tastes and odors that emanate from petroleum products.
(129) 0.01 of the lowest continuous flow 96-hour LC50 to several important freshwater and marine species, each having a demonstrated high susceptibility to oils and petrochemicals; surface waters shall be virtually free from floating nonpetroleum oils of vegetable or animal origin, as well as petroleum derived oils.
(130) Waters shall be virtually free from substances producing objectionable color for aesthetic purposes; the source of supply should not exceed 75 color units on the platinum-cobalt scale for domestic water supplies.
(131) Increased color, in combination with turbidity (suspended and settleable solids) should not reduce the depth of the compensation point for photosynthetic activity by more than 10% from the seasonally established norm for aquatic life.
(132) For open ocean waters where depth is substantially greater than euphotic zone, pH should not be changed > 0.2 units from naturally occurring variation or in any case outside of range 6.5 to 8.5. For shallow highly productive coastal and estuarine areas where naturally occurring pH variations approach the lethal limits of some species, change in pH should be avoided but in any case should not exceed limits for freshwater., i.e., 6.5 to 9.0.
(133) For chlorides and sulfates in domestic water supplies.
(134) Withdrawn.
(135) Expressed as total recoverable; may be converted to a value expressed as dissolved by multiplying the maximum criterion by 0.996 and the continuous criterion by 0.922. The Maximum Concentration is equal to 1/ [(f1/185.9) + (f2/12.83)], where f1 and f2 are the fractions of total selenium that are treated as selenite and selenate, respectively.
(136) Draft Chronic Criterion: The concentration of selenium in whole-body fish tissue should not exceed 7.91 ug/g dw (dry weight). In addition, if whole-body fish tissue concentrations exceed 5.85 ug/g dw during summer or fall, fish tissue should be monitored during the winter to determine whether the selenium concentration exceeds 7.91 ug/g dw.
(137) Expressed as free cyanide (as CN).
(138) Not toxic to aquatic organisms at or below the solubility limit of this chemical. Reference 26.

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(139) The derivation of this criterion did not consider exposure through the diet, which is probably important for aquatic life occupying upper trophic levels. Reference 26.
(140) Criterion derived from data for inorganic mercury (II), but is applied to total mercury. It will probably be underprotective if a substantial portion of mercury in the water column is methylmercury. Derivation of criterion did not consider exposure through the diet, which is probably important for aquatic life occupying upper trophic levels. Reference 26.
(141) See Reference 16.
(142) Criteria do not apply to waters subject to water quality objectives in Tables III-2A and III-2B of the San Francisco Bay Regional Water Quality Control Board's 1986 Basin Plan. See Reference 17.
(143) These criteria were promulgated for specific California waters in the National Toxics Rule, Reference 23.
(144) Monitoring required for "2,3,7,8-TCDD Equivalents" calculated as the sum of the concentrations of each 2,3,7,8-chlorinated dibenzodioxin and 2,3,7,8-chlorinated dibenzofuran multiplied by the corresponding toxic equivalency factors (TEFs); see page 28 of Reference 27.
(145) Treatment Technique: Not to exceed 0.01% residual when dosed at 20 mg/L for drinking water treatment.
(146) Provisional reference dose or cancer slope factor from USEPA Superfund Program. Not from IRIS. See Reference 34.
(147) The date is not the adoption date, but rather the date on which the limit was reaffirmed.
(148) The sum of aldicarb, aldicarb sulfoxide and aldicarb sulfone should not exceed 7 ug/L because of similar mode of action. Administrative stay of the effective date.
(149) Carcinogen; limit based on cancer risk; for water-soluble PCBs expected to be found in drinking water.
(150) Applies to the lithium salt.
(151) Criterion derived by the California Department of Fish and Game; not a national recommended criterion. Applies to first value if more than one value is listed. From Reference 32.
(152) Interim criterion derived by the California Department of Fish and Game; not a national recommended criterion. Applies to first value if more than one value is listed. From Reference 32.
(153) 10 ug/L for neonatal infant boys age 0 to 28 days. 49 ug/L for infant boys age 29 days to 24 months. 205 ug/L for adults.
(154) If assessment is to be done using an averaging period, the values given should be divided by 2 to obtain a value that is more comparable to a Criteria Maximum Concentration (1-hour average). See Reference 26.
(155) Cancer Class D based on oral exposure data; Cancer Class A based on inhalation exposure data.
(156) First value based on exposure from birth; second value based on adult exposure only.
(157) Action Level temporarily at 1-in-100,000 risk level.
(158) This limit covers the parent compound (thiobencarb), its chlorobenzyl and chlorophenyl moiety-containing degradation products and oxidation products such as thiobencarb sulfoxide, thiobencarb sulfone, and 4-chlorobenzosulfonic acid.
(159) Effective 8 December 2003 for all community water systems.
(160) Based on June 1995 IRIS oral reference dose with a relative source contribution of 40 percent.
(161) Concentration in fish or shellfish tissue.
(162) For natural uranium. Value is equal to 0.43 pCi/L.
(163) Values based on different toxicologic studies.
(164) For soluble salts.
(165) First value for aroclor 1016; second value for aroclor 1254.
(166) Value modified using more recent information in USEPA Integrated Risk Information System (IRIS). See Reference 3.
(167) Value modified using more recent information in USEPA Office of Pesticide Programs Registration Eligibility Decisions Documents. From Reference 36.
(168) Reference dose published in USEPA Office of Pesticide Programs Registration Eligibility Decisions Documents. Limit assumes 70 kg body weight, 2 liters/day water consumption, and 20% relative source contribution from drinking water. An additional uncertainty factor of 10 is used for Class C and S carcinogens. From Reference 36.
(169) Measured as free chlorine.
(170) From Reference 10.
(171) Beta/photon MCL is 4 millirem/year annual dose equivalent to the total body or any internal organ; Sr-90 MCL = 4 mrem/yr to bone marrow; Tritium MCL = 4 mrem/yr to total body.
(172) Applies to DDT and its metabolites (i.e., the total concentration of DDT and its metabolites should not exceed this value).
(173) Applies to total PCBs (e.g., sum of all congener or all isomer or homolog or Aroclor analyses).
(174) Second limit is for the hydrochloride or dihydrochloride salt.
(175) Measured as Cl2. Maximum residual disinfectant level.
(176) Measured as ClO2. Maximum residual disinfectant level.
(177) For technical or commercial grade chemical.
(178) In addition, the Average Primary Producer Steinhaus Similarity deviation for a site is less than 5% (as determined using Comprehensive Aquatic Systems Model (CASM) or other appropriate model and index) and is not exceeded more than once every three years (or other appropriate return frequency sufficient to allow system recovery). The 5% index for the protection of aquatic plant community should also be protective of most freshwater animals (chronic criterion).
(179) This criterion is for a 30-day average, rather than 4-day average.
(180) Acute and chronic aquatic life criteria are calculated using the Biotic Ligand Model, a metal bioavailability model. See Reference 25.
(181) Criterion expressed as total cyanide, even though IRIS RfD used to derive criterion based on free cyanide. The multiple forms of cyanide present in ambient water have significant differences in toxicity due to differing abilities to liberate CN-moiety. Some complex cyanides expected to have little or no bioavailability to humans. If a substantial fraction of cyanide present in water body is present in complexed form (e.g., Fe4[Fe(CN)6]3), this criterion may be over conservative.
(182) Includes a 3-fold modifying factor to account for increased bioavailability from drinking water. From Reference 3.
(183) Carcinogenic to humans by inhalation route.
(184) Limit is "non-corrosive".
(185) MCL Goal is set at "zero".
(186) Limit is less than the numerical value shown.
(187) Limit is greater than the numerical value shown.
(188) Carcinogen; limit based on cancer risk.
(189) Reproductive toxin; limit based on reproductive toxicity.
(190) Not practical to adopt a limit for this parameter because a variety of radionuclides may be responsible. See limits for individual radionuclides. OEHHA has determined that the MCL for this parameter is associated with a cancer risk "far in excess of the de minimis risk level" of one-in-a-million for lifetime cancer risks.
(191) First number is the Notification Level, above which local government notification is required and customer notification is recommended. Second number is the Response Level, at which the drinking water source is recommended to be taken out of service.
(192) Cancer risk at Notification Level is 1 in 100,000. 1 in 1,000,000 cancer risk at 0.001 ug/L.
(193) Cancer risk at Notification Level is 2 in 1,000,000. 1 in 1,000,000 cancer risk at 0.005 ug/L.
(194) Based on dental fluorosis in children, a cosmetic effect.
(195) Based on skeletal fluorosis.
(196) Value modified using more recent information in USEPA Integrated Risk Information System (IRIS) for mercuric chloride, but with cancer class "D" from earlier health advisory. See Reference 3.
(197) Cancer Class I based on oral exposure data; Cancer Class L based on inhalation exposure data.
(198) Cancer risk is likely to be no more than that of Bis(chloromethyl)ether (BCME), a contaminant of Chloromethyl methyl ether (CMME).
(199) Draft acute exposure criterion. In addition, the 24-hour average selenate concentration in ug/L should not exceed the numerical value given by exp(0.5812[ln(sulfate)]+3.357), where sulfate is expressed in mg/L.
(200) Acute criterion for selenite.
(201) Limit assumes the default Relative Source Contribution of 20% exposure from drinking water (and 80% from other sources). Toxicologists with the Cal/EPA Office of Environmental Health Hazard Assessment have stated that this is not a valid assumption for this chemical and that a much higher RSC should be used. Such a change would result in a limit higher than the current drinking water standard for total chromium.